

**HINCKLEY AND BOSWORTH  
LOCAL PLAN  
Land south of Earl Shilton - Site G  
Agricultural Land Classification  
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# AGRICULTURAL LAND CLASSIFICATION REPORT

## HINCKLEY AND BOSWORTH LOCAL PLAN Land south of Earl Shilton - Site G

### INTRODUCTION

1. This report presents the findings of a detailed Agricultural Land Classification (ALC) survey of 30.8 ha of land situated to the south of Earl Shilton in Leicestershire. The survey was carried out during January 1997.
2. The survey was commissioned by the Ministry of Agriculture, Fisheries and Food (MAFF) Land Use Planning Unit, Cambridge in connection with Hinckley and Bosworth Local Plan. This survey supersedes previous ALC surveys on this land.
3. The work was conducted by members of the Resource Planning Team in the Huntingdon Statutory Group in ADAS. The land has been graded in accordance with the published MAFF ALC guidelines and criteria (MAFF, 1988). A description of the ALC grades and subgrades is given in Appendix I.
4. At the time of survey the majority of the land at the site was in agricultural use. Two small fields at the north of the site were rough grassland, while the remainder of the agricultural land supported winter cereal crops. The pump house building and associated hard standing, located to the west of the sewage works, have been classed as other land.

### SUMMARY

5. The findings of the survey are shown on the enclosed ALC map. The map has been drawn at a scale of 1:10 000 it is accurate at this scale but any enlargement would be misleading.
6. The area and proportions of the ALC grades and subgrades on the surveyed land are summarised in Table 1.

Table 1: Area of grades and other land

Grade/Other land	Area (hectares)	% Total site area
2	10.4	34
3a	9.2	30
3b	11.0	35
Other land	0.2	1
Total surveyed area	30.8	100

7. The fieldwork was conducted at an average density of 1 auger boring per hectare. A total of 29 auger borings and 2 soil pits were described.

8. The agricultural land at the site has been assigned in broadly equal proportions to grade 2 (very good quality agricultural land), subgrade 3a (good quality agricultural land) and subgrade 3b (moderate quality agricultural land). The grade 2 land is limited by either minor droughtiness or wetness/workability imperfections, while the land graded 3a and 3b is restricted due to increasing wetness and workability limitations.

## FACTORS INFLUENCING ALC GRADE

### Climate

9. Climate affects the grading of land through the assessment of an overall climatic limitation and also through interactions with soil characteristics.

10. The key climatic variables used for grading this site are given in Table 2 and were obtained from the published 5 km grid datasets using the standard interpolation procedures (Met. Office, 1989).

Table 2: Climatic and altitude data

Factor	Units	Values
Grid reference	N/A	SP 475 975
Altitude	m, AOD	95
Accumulated Temperature	day°C (Jan-June)	1366
Average Annual Rainfall	mm	650
Field Capacity Days	days	149
Moisture Deficit, Wheat	mm	100
Moisture Deficit, Potatoes	mm	90

11. The climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

12. The main parameters used in the assessment of an overall climatic limitation are average annual rainfall (AAR), as a measure of overall wetness, and accumulated temperature (ATO, January to June), as a measure of the relative warmth of a locality.

13. The combination of rainfall and temperature at this site mean that it is relatively warm and dry. These climatic characteristics are such that in themselves they impose no limitation to land quality and therefore the climate grade for this site is 1.

### Site

14. The site lies on gently undulating land in a small valley feature formed by a tributary stream of Thurlaston Brook. The land falls towards the stream in the centre of the site and

ranges in altitude from 100 m AOD at the north and south of the site, to between 90 m AOD adjacent to the stream. Therefore neither gradient nor altitude impose limitations to land quality.

### **Geology and soils**

15. The published 1:50 000 scale geology map, sheet 155, Coalville (Geological Survey of Great Britain, 1982) shows that the whole site to be underlain by Mercia Mudstone which outcrops on lower slopes in the central part of the site. However, adjacent to the stream a narrow band of alluvium is present. On higher land in the north and south of the site glacial boulder clay deposits overlie the Mercia Mudstone.

16. On the 1:250 000 scale published soils map, sheet 3, Soils of Midland and Western England (Soil Survey of England and Wales, 1983) soils of the Whimple 3 Association are shown to occur in a thick band adjacent to the stream in the central part of the site. These soils are briefly described as reddish fine loamy or fine silty over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some similar clayey soils on brows. Slowly permeable seasonally waterlogged fine loamy and fine silty over clayey soils on lower slopes. On higher ground in the south and northern tip of the site soils of the Wick 1 Association are mapped. These soils are briefly described as deep well drained coarse loamy and sandy soils, locally over gravel. Some similar soils affected by groundwater.

17. The present survey of the site identified three main soil types.

18. In the northeast, extreme northwest and southern tips, and centre of the site light textured soils occur. Profiles typically comprise sandy clay loam, medium clay loam or medium sandy loam (or occasionally medium sandy silt loam) topsoils over sandy clay loam, medium sandy loam or medium sandy silt loam upper subsoils. The majority of lower subsoils, generally below 60 cm depth, are typically slowly permeable clays. However, in some profiles lower subsoils are loamy medium sand or medium sandy silt loams. These soils are typically very slightly or slightly stony and non-calcareous throughout.

19. In the northwest and southern centre of the site topsoils typically comprise slightly stony medium clay loams or sandy clay loams which are non-calcareous, overlying very slightly stony non-calcareous sandy clay loam or heavy clay loam upper subsoils. These typically overlie very slightly stony slowly permeable clay at depths below 45/50 cm which are variably calcareous.

20. The third soil type occurs on lower land adjacent to the stream in the centre of the site. These soils typically consist of medium, heavy or sandy clay loam topsoils which directly overlie slowly permeable clay subsoils. These soils are typically very slightly or slightly stony throughout, with non-calcareous topsoils and variably calcareous subsoils.

### **Agricultural Land Classification**

21. The details of the classification of the site are shown on the attached ALC map and the area statistics of each grade are given in Table 1, page 1.

22. The location of the auger borings and pits is shown on the attached sample location map.

### *Grade 2*

23. Grade 2 land occurs at the northern and southern edges and centre of the site and is associated with the light textured soils described in paragraph 18. Where profiles have impeded drainage caused by the presence of a slowly permeable layer at depth, they have been assessed as wetness class II (or occasionally wetness class III) (for definition of wetness classes see Appendix II). This factor combines with the topsoil textures to restrict the land to grade 2 due to wetness and workability limitations. In addition, some profiles have no slowly permeable layers and are therefore free draining (wetness class I). On this land the presence of light textures and stones combine to slightly reduce the water reserves available for plant growth. Moisture balance calculations indicate that profiles typically suffer from minor droughtiness limitations and this restricts the land to grade 2.

### *Subgrade 3a*

24. Two areas of land at the site have been graded 3a, in the northwest and south, and these correspond with the soils described as fine loamy over clay below 45/50 cm in paragraph 19. These soils have been assessed as wetness class III and this factor combines with the medium clay loam or sandy clay loam topsoil textures to restrict the timing of cultivations. Therefore moderate wetness and workability limitations preclude this land from a higher grade.

### *Subgrade 3b*

25. Land graded 3b occurs adjacent to the stream in the centre of the site in conjunction with the poorly drained fine loamy over clay soils described in paragraph 20. These soils have impeded drainage directly below the topsoil and have been assessed as wetness class IV. This factor combines with the fine topsoil textures resulting in significant wetness and workability imperfections which limit the land to subgrade 3b.

26. Although individual profiles of better and/or poorer grades were occasionally noted within all of the above mapping units, they occurred too randomly or inextensively to permit separate delineation at the scale shown.

Ruth Tarrant  
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## SOURCES OF REFERENCE

Geological Survey of Great Britain (England and Wales) (1982) *Sheet 155, Coalville*.  
BGS: London.

Ministry of Agriculture, Fisheries and Food (1988) *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land*. MAFF: London.

Met. Office (1989) *Climatological Data for Agricultural Land Classification*.  
Met. Office: Bracknell.

Soil Survey of England and Wales (1983) *Sheet 3, Soils of Midland and Western England*.  
SSEW: Harpenden.

Soil Survey of England and Wales (1984) *Soils and their Use in Midland and Western England*.  
SSEW: Harpenden

## APPENDIX I

### DESCRIPTION OF THE GRADES AND SUBGRADES

#### **Grade 1: Excellent Quality Agricultural Land**

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

#### **Grade 2: Very Good Quality Agricultural Land**

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural or horticultural crops can usually be grown but on some land of this grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1 land.

#### **Grade 3: Good to Moderate Quality Land**

Land with moderate limitations which affect the choice of crops, the timing and type of cultivation, harvesting or the level of yield. When more demanding crops are grown, yields are generally lower or more variable than on land in Grades 1 and 2.

#### **Subgrade 3a: Good Quality Agricultural Land**

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

#### **Subgrade 3b: Moderate Quality Agricultural Land**

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass, or lower yields of a wider range of crops or high yields of grass that can be grazed or harvested over most of the year.

#### **Grade 4: Poor Quality Agricultural Land**

Land with severe limitations which significantly restrict the range of crops and/or the level of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

#### **Grade 5: Very Poor Quality Agricultural Land**

Land with severe limitations that restricts use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

## APPENDIX II

### SOIL WETNESS CLASSIFICATION

#### Definitions of Soil Wetness Classes

Soil wetness is classified according to the depth and duration of waterlogging in the soil profile. Six soil wetness classes are identified and are defined in the table below.

Wetness Class	Duration of waterlogging <sup>1</sup>
I	The soil profile is not wet within 70 cm depth for more than 30 days in most years. <sup>2</sup>
II	The soil profile is wet within 70 cm depth for 31-90 days in most years or, if there is no slowly permeable layer within 80 cm depth, it is wet within 70 cm for more than 90 days, but only wet within 40 cm depth for 30 days in most years.
III	The soil profile is wet within 70 cm depth for 91-180 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 70 cm for more than 180 days, but only wet within 40 cm depth for between 31-90 days in most years.
IV	The soil profile is wet within 70 cm depth for more than 180 days but not wet within 40 cm depth for more than 210 days in most years or, if there is no slowly permeable layer present within 80 cm depth, it is wet within 40 cm depth for 91-210 days in most years.
V	The soil profile is wet within 40 cm depth for 211-335 days in most years.
VI	The soil profile is wet within 40 cm depth for more than 335 days in most years.

#### Assessment of Wetness Class

Soils have been allocated to wetness classes by the interpretation of soil profile characteristics and climatic factors using the methodology described in *Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land* (MAFF, 1988).

<sup>1</sup> The number of days is not necessarily a continuous period.

<sup>2</sup> 'In most years' is defined as more than 10 out of 20 years.